APPENDIX A

Cleanup Plan Proposed for Pine Street Barge Canal Superfund Site

Burlington, Vermont

Pine Street Cleanup History/ Council Background...

The Pine Street Barge Canal Superfund Site is a 70-acre site between Pine Street and Lake Champlain. The site includes contains 21 acres of wetlands, including an old canal. A manufactured gas plant, which made "town gas" for street lights from coal and oil, operated at the site from 1895 to 1966. During that period, wastes from the gas plant were disposed in the canal and wetlands at the site.

EPA added the site to the national list of high priority Superfund sites in 1983. EPA conducted environmental studies at the site during the 1980's, which revealed high levels of organic contaminants associated with gas plant wastes in the canal and groundwater.

In 1992 EPA proposed a cleanup plan that would have involved excavating contaminated soil and sediment from the canal and wetland, disposing this material in a containment facility to be built at the site, and containing contaminated groundwater. The public's comments (Continued on page 2)

Council and EPA Develop Proposed Plan... EPA Seeks Comment

The Pine Street Barge Canal Coordinating Council reached consensus on the cleanup approach for the Pine Street Barge Canal Superfund site. This consensus approach is detailed in this document.

While the Council consensus on this proposed plan is significant, EPA is seeking further review by the community before EPA makes the final cleanup decision.

You are invited to participate!

Information Session
Start of 30-day comment period
7:00 pm
Thursday, June 4, 1998

Contois Auditorium
City Hall
233 Central Avenue
Burlington, VT

Formal Public Hearing
Wednesday, June 24, 1998
7:00 pm
Contois Auditorium

Comments due no later than July 8, 1998

The Cleanup Proposal...

After careful study of the Pine Street Barge Canal Superfund site, and following the recommendation of the Pine Street Barge Canal Coordinating Council, EPA proposes the following plan to reduce risk from site contamination to protect human health and the environment:

- **Place an underwater cap over the canal sediments that present the highest risk to the environment.**
- **Cover several wetland areas of contaminated soil and sediment near the canal.**
- **Set in place land-use restrictions to prevent residential use, unsafe contact with contaminated soil below five feet, use of water for drinking, and use of the site for children's day care in the future.**
- **Redirect and monitor the storm water inflow to the site.**
- **Monitor groundwater, surface water, soils and sediments at the site.**

More on page 3

In accordance with the Comprehensive Environmental Response, Compensation and Liability Act (Section 117) the law that established the Superfund program, this document summarizes EPA's cleanup proposal. For detailed information on the options evaluated for use at the site, see the Pine Street Feasibility Study (prepared by Metcalf and Eddy) and Additional Feasibility Study (prepared by the Johnson Company and Remediation Technologies, Inc.). These documents are available for review at the information repositories at the Fletcher Free Public Library in Burlington, the UVM Bailey-Howe Library and at the EPA's Record Center, 90 Canal Street, Boston, Massachusetts.

1.

Coordinating Council Background (cont.)

on the proposed plan were overwhelmingly negative; in response, EPA withdrew its proposed plan in 1993.

After withdrawing the 1992 proposed plan, EPA agreed with the many local residents who believed that a new community-based process was needed to solve the problem of environmental contamination at the Pine Street Site. In 1993, representatives of environmental groups, local citizens, the potentially responsible parties, EPA, the Vermont Department of Environmental Conservation and the City of Burlington all joined together to form the "Pine Street Coordinating Council." This group was created to design studies to fill data gaps regarding the site and consider potential cleanup technologies, and to develop a consensus on a cleanup proposal designed to protect health and the environment in a way that is acceptable to the community.

The Pine Street Site is one of the first in the country where a public consensus group has been used to develop and recommend a Superfund remedy. The Coordinating Council has had technical support from scientists at UVM, as well as from EPA, VTDEC and consultants hired by the potentially responsible parties. The Coordinating Council operates by consensus, so that the views of all council members are fully heard and disputes are resolved before the Council recommends a particular study or cleanup proposal.

The members of the Pine Street Coordinating Council include Lori Fisher and Bill Howland of the Lake Champlain Committee, Marty Feldman of the Pine Street Arts and Business Association, John Akey of the Neighborhood 5 Planning Association, Susan Compton for the City of Burlington, Gary Kjelleren of General Dynamics representing landowners at the Pine Street Site, Martin Johnson of Green Mountain Power Corp. and Allyson Donohoe of New England Electric System for the potentially responsible parties, Ross Gilleland and Karen Lumino of EPA, Stan Corneille and George Desch of VTDEC, and Ken Carr of the U.S. Fish & Wildlife Service. Other members of the public have attended and are invited to attend meetings of the Coordinating Council as well.

Over the last five years the Coordinating Council has done a tremendous amount of hard work. The Council has designed additional environmental investigations at the site and evaluated their results, has debated and reached consensus on key scientific questions and what the goals of cleanup should be, and has evaluated cleanup technologies. EPA extends the greatest thanks to all members of the Coordinating Council -- and especially the citizen members who volunteered to attend countless meetings during the workday and at night -- in pulling together the cleanup plan which is now proposed.

2.

Closer Look at the Pine Street Cleanup Proposal...

1. **Construct an underwater cover over canal sediments that present the highest risk to the environment.**

- Place a suitable material over the contaminated canal sediments to prevent aquatic life from coming into contact with contaminants. This type of remedy has been used at several other contaminated sediment sites. Since this will be done while water is in the canal, measures will be taken to prevent sediment from moving to Lake Champlain during cap placement. Potentially historic sunken barges will be further buried under the cap but will be photographed or documented first.

2. **Construct a permanent weir at the canal outlet to Lake Champlain to keep the canal at a level which will maintain the wetlands and still allow fish to use the canal for spawning habitat.**

3. **Place a soil cap over several wetland areas with contaminated soil near the canal.**

4. **Restrict land use at portions of the site to protect people from coming in contact with contaminants, to avoid interfering with the site remedy, and to prevent contamination from migrating.**

- Through legal mechanisms, place restrictions on portions of the site to prevent residential use, excavations of highly contaminated soil below 5 feet, the use of groundwater for drinking, and use as a children's day care center in the future.

5. **Redirect and monitor storm water inflow.**

- Construct a spreader to evenly distribute storm water throughout the wetlands at the southern end of the canal. This will reduce erosion and allow the existing wetlands to be more effective in collecting and removing sediment and contaminants before they enter the canal and the lake.
- Monitor storm water quality and quantity.

6. **Monitor the site.**

- Sample to ensure the cap is working and remains effective over the long term.
- Sample the surface water and the groundwater to make sure that contamination is not migrating offsite and is not migrating to Lake Champlain.

7. **Define Superfund site boundary to reflect nature and extent of contamination and risks found.**

- EPA proposes to define the boundary of the Superfund site as shown in Figure 1. The site boundary encompasses the area where the manufactured gas plant wastes were found and removes the Superfund designation as a barrier to developing certain parcels along the Pine Street corridor.

Why Does EPA Recommend this Proposed Plan?

The cleanup plan, which uses capping for containment of contaminated soil and sediments, and land use controls to prevent groundwater use and exposure to contaminated subsurface soil is proposed because it:

✓ Was developed through an intensive community involvement process and has the consensus support of the Pine Street Barge Canal Coordinating Council;

✓ Allows for protection of the environment and human health with minimal disturbance of site contaminants;

✓ Is the best balance of the 9 criteria (listed on page 6), including protecting public health and the environment;

✓ Restores and protects a valuable and uncommon urban ecosystem in the City of Burlington;

✓ Allows for reuse of the developable portions of the Pine Street area, with restrictions to insure that people are protected from contaminants remaining on the site and that future development does not cause contaminants to migrate;

✓ Minimizes potential risks to residents and the environment during construction. Excavation and off-site disposal or treatment of canal sediments were ruled out because of short-term human health risks and cost. Even if EPA were to select these more invasive remedial alternatives, the site would still have to be monitored over the long term.

4.

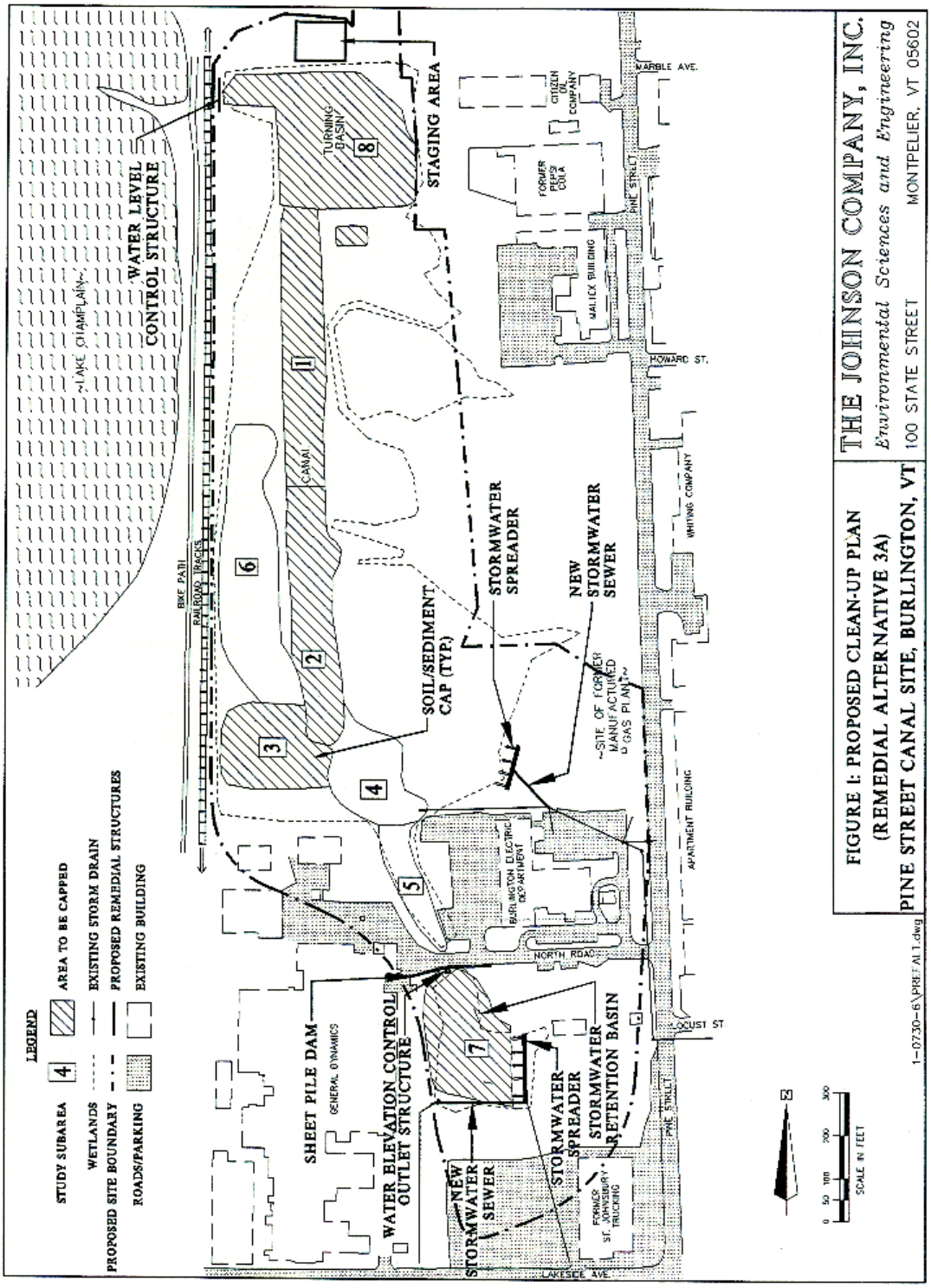
LEGEND
STUDY SUBAREA
AREA TO BE CAPPED
WETLANDS
EXISTING STORM DRAIN
PROPOSED SITE BOUNDARY
PROPOSED REMEDIAL STRUCTURES
ROADS/PARKING
EXISTING BUILDING
LAKE CHAMPLAIN
WATER LEVEL CONTROL STRUCTURE
STAGING AREA
TURNING BASIN
BIKE PATH
RAILROAD TRACKS
CANAL
SOIL/SEDIMENT CAP (TYP.)
STORMWATER SPREADER
NEW STORMWATER SEWER
SITE OF FORMER MANUFACTURED GAS PLANT
SHEET PILE DAM
GENERAL DYNAMICS
WATER ELEVATION CONTROL OUTLET STRUCTURE
BURLINGTON ELECTRIC DEPARTMENT
NORTH ROAD
APARTMENT BUILDING
WHITING COMPANY
MARBLE AVE.
CITIZEN OIL COMPANY
FORMER POWER PLANT
MALICK BUILDING
PINE STREET
HOWARD ST.
LOCUST ST
LAKESIDE AVE.
FORMER ST. JOHNSBURY TRUCKING
SCALE IN FEET
0 50 100 200 300
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FIGURE 1: PROPOSED CLEAN-UP PLAN
(REMEDIAL ALTERNATIVE 3A)
PINE STREET CANAL SITE, BURLINGTON, VT
THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering
100 STATE STREET
MONTPELIER, VT 05602

Why is cleanup needed?

The Pine Street Barge Canal site is an example of an uncommon and valuable wetland set in the midst of an urban landscape. It is contaminated with high levels of potentially harmful chemical constituents. The contaminants of most concern are PAHs (polycyclic aromatic hydrocarbons), metals, and VOCs (volatile organic chemicals) at levels that are harmful to human health and the environment.

- Canal sediments contain contaminants at concentrations higher than levels established to protect aquatic life and the ecosystem.
- Contamination in a portion of the canal sediments is causing significant harm to organisms that live in the sediment and form the basis of the aquatic food chain. These organisms were selected by technical experts for the Coordinating Council to represent the overall health of the ecosystem.
- Fish in the canal show evidence of exposure to contaminants from the sediments, but significant harm to fish populations has not been shown. It is not likely that people who occasionally eat fish caught in the canal are being harmed by site contaminants.
- Potential risk to human health would occur if the groundwater were to be used for drinking. However, because of City and State restrictions and low yield, this use is unlikely.
- Frequent or long-term exposure to soils below 5 feet that are highly contaminated could possibly harm site workers or visitors. People who presently visit or work at the site are not at risk.
- The canal serves as a nesting and feeding area for birds, and spawning and nursery habitat for fish.

To protect the nearby community, site workers, and the Pine Street ecosystem, the EPA is formally proposing the capping remedy recommended by the Coordinating Council, which would reduce the likelihood that people and animal life would be exposed to the site contaminants.

NEXT STEPS

In 1998, EPA expects to review all comments received during this comment period and issue the Record of Decision document describing the chosen cleanup plan. The Record of Decision and a summary of responses to public comment will then be made available to the public at the Fletcher Free Library, UVM's Bailey Howe Library and the EPA Record Center in Boston. The EPA will announce its formal final decision through local media and the community mailing list.

An Historic Overview of the Pine Street Barge Canal Site

The study area of the Pine Street Barge Canal Superfund Site consists of

- a 6-acre Canal and Turning Basin connected to Lake Champlain
- approximately 15 acres of vegetated wetland
- approximately 17 acres of undeveloped upland
- approximately 32 acres currently developed

Pre-1900: The site is used for a variety of industrial activities including lumber yards, coal/oil storage, and boat building.

1868: The Barge Canal and Turning Basin are dredged.

1895-1966: Manufactured gas plant (MGP) operates near Pine Street. Plant converted oil and coal into gas. Coal gasification wastes (by-products) such as coal tar, fuel oil, tar-saturated wood chips, cinders, cyanide, and metals were reportedly disposed of in wetlands behind the plant.

1926: First documented report of floating oil from the site.

1966-1969, 1975: Several documented reports of an oil-like material in the canal and lake.

1977-1978: Exploratory borings for the proposed Southern Connector highway reveal extensive sub-surface contamination.

1983: Site placed on the Superfund National Priorities List.

1981-1986: Vermont Agency of Transportation conducts environmental studies in proposed highway right-of-way.

1985: At request of Vermont Agency of Environmental Conservation, EPA removes 1500 tons of coal tar contaminated material and installs a cap on part of the site known as Maltex Pond.

1989-1992: EPA conducts site studies and proposes a cleanup plan to contain contamination on site.

1993: EPA's cleanup plan withdrawn following public comment. The Pine Street Barge Canal Coordinating Council established to fill data gaps and recommend a cleanup plan to EPA.

1993: State classifies groundwater at Pine Street as Class IV: non-potable.

1993-1997: Potentially Responsible Parties conduct studies designed by the Coordinating Council under EPA oversight.